

EPA Superfund Explanation of Significant Differences:

**PETROCHEM RECYCLING CORP./EKOTEK PLANT
EPA ID: UTD093119196
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SALT LAKE CITY, UT
05/11/1999**



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VIII
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EXPLANATION OF SIGNIFICANT DIFFERENCES

**Petrochem Recycling Corp./Ekotek, Inc., Superfund Site
Salt Lake County, Salt Lake City, Utah**

May 1999

**PETROCHEM RECYCLING CORP./EKOTEK, INC., SUPERFUND SITE
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I. INTRODUCTION

This Explanation of Significant Differences (ESD) is being issued by the U.S. Environmental Protection Agency (EPA) to modify certain remediation criteria established in the Record of Decision signed by EPA on September 27, 1996 (ROD), and certain other components of the ROD, as described herein, which will be implemented at the Petrochem Recycling Corp./Ekotek, Inc., Superfund Site, located in Salt Lake City, Utah (Petrochem/Ekotek Site or Site).

The changes to the ROD result from new information received by EPA subsequent to issuing the ROD. These changes do not fundamentally alter the site-wide remedy presented in the ROD. The site-wide remedy for the Petrochem Site remains protective of human health and the environment. This ESD is issued by EPA, the lead agency at the Site, after consultation with the Utah Department of Environmental Quality (UDEQ), the support agency at the Site.

The modifications to the remedy described in this ESD do not alter the selected remedy in any fundamental aspect regarding scope, overall cost, or performance. In accordance with Sections 117(c) and 121 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (Superfund), as amended, 42 U.S.C. Section 9601, et seq. ("CERCLA"), and the regulations at 40 C.F.R. Section 300.435(c)(2)(I), the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), this ESD has been prepared for the following reasons:

- To provide the public with an explanation of the nature of the changes to the remedy;
- To summarize the circumstances that led to the changes to the remedy; and
- To affirm that the revised remedy complies with all statutory requirements.

This document presents a summary of the changes to the selected remedy and a synopsis of information on the Site. The Administrative Record, which contains the ESD and this documentation supporting the revisions, is available for public review at the locations indicated at the end of this report.

II. SITE HISTORY AND BACKGROUND

A. Location

The Petrochem/Ekotek Site (the Site) is located in Township 1 North, Range 1 West, Section 23, and occupies approximately seven acres in an industrial corridor in the northern section of Salt Lake City, Utah.

B. Ownership and Operational History

The Site was originally owned and operated as an oil refinery by O.C. Allen Oil Company, from 1953 to 1968. In 1968, Flinco, Inc. purchased the facility and operated the refinery until 1978. During that time Flinco changed its name to Bonus International Corp. In 1978 Axel Johnson, Inc., acquired the facility and operated it through its Delaware-based subsidiary, Ekotek, Inc. At this time, Ekotek, Inc. converted the Site into a hazardous waste storage and treatment, and petroleum recycling facility. Steven Self and Steve Miller purchased the site from Axel Johnson, Inc. in 1981 and reincorporated as Ekotek Incorporated, a Utah corporation. From 1980 to 1987, the facility operated under Resource Conservation and Recovery Act (RCRA) Interim Status, and received a hazardous waste storage permit in July 1987 for a limited number of activities. Ekotek, Inc. declared bankruptcy in November of 1987. Petrochem Recycling Corp. leased the facility in 1987 from Ekotek, Inc. and continued operations until February 1988. The Ekotek bankruptcy estate released the property (Parcel Numbers 0823407001 and 0823407002) pursuant to state statute, Utah Code Annotated Section 59-2-1336. Delinquent county taxes attributed to the property have not been paid. Ownership of the Site is uncertain at present following the bankruptcy proceedings of Ekotek Incorporated, the owner of the Site in 1989. A transfer of title to the property to either the county or a potential purchaser may occur as a result of a final tax sale. The tax sale must be initiated within four and a half years after the initial date of the delinquent taxes.

C. History of Site Investigations

In 1980, Ekotek, Inc., filed a RCRA Part A permit application and achieved Interim Status. A RCRA Part B permit was issued in 1987 to Ekotek, Inc. Site operations were shut down in February 1988, after the issuance to Petrochem Recycling Corporation of a Notice of Violation by the Utah Bureau of Solid and Hazardous Waste and by the Bureau of Air Quality. In November 1988, Region VIII EPA Emergency Response Branch initiated an emergency surface removal action at the site.

Sources of contamination at the Site at the time of the emergency surface removal action included approximately 60 aboveground tanks, 1200 drums and 1500 smaller containers, three surface impoundments, an underground drain field, numerous piles and pits of waste material, underground tanks, incineration furnaces, and contaminated soils. Contaminants associated with on site sources include a wide range of organic substances such as chlorinated solvents and other volatile organic compounds, polynuclear aromatic hydrocarbons, phthalates, pesticides, Aroclor 1260, dioxin and furans. Heavy metals are also present in on site sources.

1. Emergency Surface Removal Action

On August, 2, 1989, an Administrative Order on Consent (AOC) for Emergency Surface Removal (Docket CERCLA-VIII-89-25) was issued to 27 Potentially Responsible Parties (PRPs) to undertake actions to clean up the Site. These PRPs operated as members of a voluntary association termed the Ekotek Site Remediation Committee (ESRC). As part of the emergency surface removal action, the ESRC removed surface and underground storage tanks, containers, contaminated sludges, pooled liquids, and processing equipment from the Site.

2. Listing on the National Priorities List

EPA began site assessment field operations in November 1989, at which time all contaminant sources discussed above were present on site. Pursuant to section 105 of CERCLA, 42 U.S.C. Section 9605, EPA Proposed the Site for listing on the National Priorities List (NPL), set forth at 40 C.F.R. Part 300, Appendix B, by publication in the Federal Register on July 29, 1991; and listed the Site on the NPL promulgated on October 14, 1992; 57 Fed. Reg. 47180, 47200 (October 14, 1992). Only one operable unit has been designated for the Site.

3. Remedial Investigation, Feasibility Study, and Remedy Selection

An Administrative Order on Consent (AOC) for the performance of the Remedial Investigation/Feasibility Study (RI/FS) was signed in July 1992 (Docket No. CERCLA (106) VIII-92-21). Members of the ESRC were Respondents for the RI/FS AOC. The Phase I field investigation was undertaken from December 1992 to March 1993 and Phase II investigations were conducted from August to October 1993. A final RI report was issued in July 1994 and the final FS report was issued in January 1995. Two addenda to the FS were submitted on February 24, 1995 and April 7, 1995.

The hazardous substances present at the site and the data or information documenting a release or threatened release of a hazardous substance at or in connection with the Site is described in the Administrative Record for the Site, including but not limited to the RI Report. The release migration, including present and potential future pathways, possible or known routes of exposure of the hazardous substances, population at risk, and threats to human health and the environment are described in the Administrative Record for the Site, including but not limited to the Baseline Risk Assessment for the Site.

Pursuant to Section 117 of CERCLA, 42 U.S.C. § 9617, EPA published notice of the completion of the FS and of the proposed plan for remedial action on July 19, 1995, in two major local newspapers of general circulation. EPA provided extensive opportunity for written and oral comments from the public on the proposed plan for remedial action. A copy of the transcript of the public meeting is available to the public as part of the administrative record upon which the Ecosystems Protection and Remediation Assistant Regional Administrator based the selection of the response action.

EPA's remedy decision is embodied in a final Record of Decision (ROD) executed on September 27, 1996. The State had a reasonable opportunity to review and comment on the remedial action and the ROD. The ROD includes EPA's explanation for any significant differences between the final plan and the proposed plan as well as a responsiveness summary to the public comments received. Notice of the final plan was published in accordance with Section 117(b) of CERCLA, 42 U.S.C. § 9617(b). The ROD is supported by an administrative record that contains the documents and information upon which EPA based the selection of the response action.

An Explanation of Significant Differences was issued on December 9, 1997 by EPA to modify certain remediation criteria established in the 1996 Record of Decision. The significant differences

addressed in the ESD were: corrected and revised “soil performance” standard values for 2,3,7,8-TCDD(TEF) and PCBs; revised soil “hot spot” performance standard value for PCBs; and an alternative to permit discharge of water to re-injection wells or to a surface water/storm drain via the substantive requirements of a UPDES permit.

4. Second Removal Action

An Administrative Order on Consent for Removal Action was issued on December 22, 1997 (Docket No. CERCLA (106) VIII-98-05) for the performance of Drum and Sludge Removal. Members of the ESRC were Respondents for the Administrative Order on Consent for Removal Action. Actions under this AOC were completed in October 1998. The actions completed under the Drum and Sludge Removal included the following: the characterization of drummed waste and filter cake sludge, the disposal of approximately 230 drums and the associated waste at a permitted RCRA facility, and the disposal of approximately 450 cubic yards of filter cake sludge at a permitted RCRA facility. A final Drum and Sludge Removal Completion report was issued in December 1998.

5. Final Remedy Design and Implementation

EPA and the ESRC representatives negotiated an agreement to implement the remedy selected in the ROD. This agreement, in the form of a consent decree for remedial design and remedial action (RD/RA Consent Decree), was lodged on March 4, 1998 and entered on April 27, 1998 in the U.S. District Court for Utah. Since the time of the consent decree, EPA has obtained new information which has resulted in the result for this ESD. The consent decree, amended to incorporate this ESD, provides for the implementation of the remedy selected in the ROD and amended pursuant to this ESD.

III. DESCRIPTION OF THE ROD REMEDY AND ESD

The purpose of the remedy selected in the ROD was to:

- Eliminate the pathway of direct exposure to soils, of an industrial worker, through excavation and off site disposal of “hot spot” soils;
- Contain low-level contaminated soil on site under a 42-inch soil cap;
- Eliminate partitioning of LNAPL to the ground water through removal and treatment of LNAPL; and
- Eliminate the potential future ingestion of contaminated drinking water through intrinsic remediation/attenuation of the ground water.

The components of the selected remedy include:

- Remove/Dispose "Hot Spot" Soils; Consolidate/Cap Soils that Exceed “Soil Performance”

Standards;

- Partial Removal/Disposal of Soil and Buried Debris and Cap Remaining Debris; Remove/Treat 100% LNAPL;
- Intrinsic Remediation of Ground Water; and
- Access and Land Use Restrictions for the Petrochem/Ekotek Site.

The changes documented in this ESD are based on new information provided to EPA by the ESRC subsequent to the issuance of the ROD. EPA determined that this information supports the need to further correct and/or clarify certain aspects of the remedy described in the ROD . These changes do not fundamentally alter the overall approach of the site-wide remedy or any individual component of the site-wide remedy.

This ESD addresses two basic changes to the ROD: 1) A change to delete manganese as a designated contaminant of concern in the ground water, and 2) Increase the volume of contaminated soil destined for off site disposal. The change in the status of manganese as a chemical of concern in this ESD will not impact the removal/treatment of LNAPL or the intrinsic remediation of ound water. The change to off site disposal for all soils that exceed “soil performance” standard will eliminate the need to consolidate and contain any of those soils under a 42-inch cap as provid d in the ROD. The ROD provided an estimated volume of soil to be sent off site and an estimated volume of soil to be consolidated and contained on site. The actual soil volume sent off site will be determined during the implementation of the remedy.

IV. SIGNIFICANT DIFFERENCES TO THE REMEDY

The significant differences between the remedy described in the 1996 ROD and in this ESD are:

1. Manganese will be removed as a ground water performance standard (chemical of concern), and
2. All soil exceeding the “soil performance” standards will be se off site to a RCRA permitted landfill.

Only those changes described in Section IV, Paragraphs 1 and 2 above are being made to the selected remedy described in the 1996 ROD. All other aspects ofthe selected remedy documented in the 1996 ROD and the December 1997 ESD icmain the same. A more detailed description of the revised components to the remedy follows.

V. DETAILED DESCRIPTION OF EVENTS LEADING TO THIS ESD

A. New Information

- The removal of manganese as a ground water performance standard (chemical of concern).

EPA relies upon the Agency's Integrated Risk Information System (IRIS) for the calculation of risk-based cleanup concentrations. IRIS, an electronic data base containing EPA's information on human health effects, was revised for manganese in November 1995. Specifically, the reference dose was revised subsequent to the release of the ROD. The reference dose is an estimate of a daily exposure to the human population (including sensitive subgroups) that is likely to be without an appreciable risk of damaging effects during a lifetime. EPA now recommends the use of a new reference dose of 0.14 mg/kg-day for the ingestion of food, updated from 0.005 mg/kg-day.

The manganese reference dose of 0.14 mg/kg-day for the ingestion of food was adjusted to a reference dose of 0.02 mg/kg-day for the ingestion of water. The adjustment in the reference dose value was made because:

1. Manganese in water is more bioavailable than in food. A modifying factor of 3 was used to account for this increased bioavailability; and
2. Manganese is a normal part of the diet. On average, adults consume between 2 and 5 milligrams (mg) of manganese per day. Half of this daily intake is through the ingestion of food, and the other half, through the ingestion of water. A modifying factor of 2 was used to account for the consumption of manganese in water.

Consequently, the reference dose for water is: $0.14/(2 \times 3) = 0.02 \text{ mg/kg-day}$.

The hazard quotient for manganese in ground water was recalculated using the same equation used in the August 2, 1994 Baseline Human Health Risk Assessment for the Petrochem Site. The hazard quotient equation is as follows:

$$HQ = CDI/RfD$$

where,

HQ = Hazard quotient

CDI = Chronic daily intake

RfD = Chronic oral reference dose for manganese.

As part of the original Baseline Risk Assessment for the site, a chronic daily intake of manganese was estimated using the available ground water data and reasonable maximum exposure assumptions for a residential ground water exposure scenario. A chronic daily intake value of 0.00502 and a reference dose of 0.005 were used to calculate a hazard quotient of 1. Consequently, manganese was retained as a chemical of concern in the ROD.

For the purposes of reassessing risk due to manganese at the Site, the hazard quotient was recalculated using updated values. In order to update the chronic daily intake parameter, ground water data was collected from November 1995 through December 1998. The chronic daily intake value was recalculated and increased to 0.012. With a new chronic daily intake concentration of 0.012 and an updated reference dose of 0.02, the hazard quotient was recalculated and found to be less than one. Therefore, manganese in groundwater does not pose a potential health hazard. Based on this evaluation, manganese will not be retained as a chemical of concern at the site.

- Off site disposal of all soil exceeding the “soil performance” standards.

During the value engineering (VE) component of the Remedial Design, ESRC’s supervising contractor provided information to EPA revising the following estimates: 1) The overall remedy cost {table 1}, 2) The volume of soil exceeding the “soil performance” standards {table 2}, and 3) The volume of soil exceeding soil “hot spot” performance standards {table 2}. The following tables were prepared as part of the value engineering study utilizing RI/FS data and soil sampling data obtained during the remedial design sampling efforts.

TABLE 1
**SUMMARY OF COST ANALYSIS BETWEEN ROD REMEDY AND OFF SITE
DISPOSAL OF ALL CONTAMINATED SOILS**

		<u>ROD Remedy*</u>	<u>Off Site Disposal Option</u>
<i>Likely Case Scenario**</i>			
Capital Cost		\$7,510,990	\$8,051,519
Annual Cost	Year 1	\$ 143,307	\$ 30,702
	Year 2 -5	\$ 82,796	\$ 27,702
	Year 6-30	\$ 82,796	\$ 0
Present Worth	5 year	\$7,897,597	\$8,164,902
	10 year	\$8,122,587	Removal of all contaminated soil of site is less costly after 10 years in terms of present worth
	20 year	\$8,379,917	
	30 year	\$8,499,118	
<i>Worst Case Scenario***</i>			
Capital Cost	Year 1	\$8,743,953	\$10,507,819
Annual Cost	Year 2 -5	\$ 376,976	\$ 142,202
	Year 6-30	\$ 360,092	\$ 49,170
		\$ 301,066	\$ 46,170
Present Worth	5 year	\$10,197,325	\$10,790,278
	10 year	\$11,015,442	\$10,915,741
	20 year	\$11,951,155	Removal of all contaminated soil off site is less costly after 10 years in terms of present worth.
	30 year	\$12,384,600	

* The original ROD remedy estimate was \$6.1 million.

** Based on current soil volume estimates and disposal costs.

*** Assumes added costs due to additional soil volumes encountered during Remedial Action and/or higher disposal costs.

TABLE 2
ESTIMATED VOLUMES OF CONTAMINATED MATERIAL

	Volumes as Stated in The ROD (Cubic yards)	Revised Volumes (Cubic yards)
<i>Soil Required by the ROD to be shipped Off site</i>		
Hot Spots, Buried Debris, and LNAPL-Saturated Soil	16,930	28,475
<i>“ Performance Standard” Soil to be Consolidated on Site</i>		
East and West side Surface Soils, Deeper soils at TPH Hot Spot area by the concrete Loading Ramp, Former UST #2/Admin Bldg Area, and LNAPL Overburden/Tank Farm Area	35,215	43,256

The following two conclusions can be drawn from this table: 1) A greater quantity of “hot spot” contaminated material would be sent off site to a permitted landfill than originally estimated in the ROD, and, 2) A greater volume of soil exceeding the “performance standard” would have to be consolidated on site than originally estimated in the ROD.

B. Discussions

Based upon this new information, EPA met with Utah Department of Environmental Quality (UDEQ), the ESRC, and the Capital Hill Neighborhood Council and discussed the following: 1) The removal of manganese as a ground water performance standard, 2) The impacts to the ROD if all soil exceeding the “soil performance” standards were sent off site, 3) The benefits of sending all soil exceeding the “soil performance” standards off site, and 4) The viability of sending all soil exceeding the “soil performance” standards off site.

C. Conclusions leading to the development of this ESD

1. Impacts to the Record of Decision (ROD).
 - The detection of manganese in ground water will not trigger a contingency measure,

- All contaminated soil exceeding the “performance standards” will be sent off site to a permitted RCRA or TSCA landfill,
- The excavated buried debris and overburden areas will be filled with clean soil rather than “soil performance” standards soil,
- The excavation area will not require a 42 inch cap, and
- Source material removal is expected to further reduce potential impacts to ground water.

2. Benefits of Making these Changes to the Remedy.

- The detection of manganese in ground water will not needlessly trigger the ground water contingency measures,
- No contaminated soil exceeding the “soil performance” standards will remain on site,
- The site will not be burdened with a permanent repository that could impede redevelopment,
- There will be a reduction in the number of institutional controls required at the site. Additionally, there will not be a need to maintain and monitor a permanent repository,
- There will be a reduction in long term operation and management (O&M) activities and costs, and a significant reduction in long term risk at the site, and
- These modified components still comply with all applicable or relevant and appropriate requirements (ARARs), pursuant to Section 121 of CERCLA.

3. The Viability of Implementing these Changes to the Remedy.

- EPA determined that the Utah Department of Environmental Quality and the community support these changes. EPA also determined that these changes are feasible and practical based upon the revised cost and soil volume estimates.

Based on this evaluation: 1) Manganese is no longer a ground water performance standard, and 2) All soil exceeding the “soil performance” standards will be sent off site.

VI. SUMMARY OF STATE COMMENTS AND AVAILABILITY OF ADMINISTRATIVE RECORD

UDEQ has been provided with the opportunity to review and comment on this ESD and the documents that serve as the basis for this ESD. UDEQ commented to EPA on this document, and supports the changes. UDEQ’s comments can be found in the Administrative Record for the Site.

Documents referenced within this ESD are part of the Administrative Record for the

Petrochem/Ekoteck Inc. Site. The complete administrative record for the Site is available for public review at the following locations:

EPA Superfund Records Center

999 18th Street, Fifth Floor

Denver, Colorado 80202

Hours: Monday-Friday 8:00am - 4:30pm

Telephone: (303) 312-6473

Mr. Walter Jones

Marriott Library

Western Americana and Special Collections

University of Utah

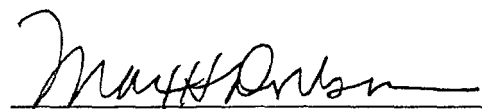
Salt Lake City, UT 84122

Telephone: (801) 581-8863

VII. AFFIRMATION OF STATUTORY REQUIREMENTS

Considering the new information that has been developed and the changes that have been made to the selected remedy, EPA, in consultation with UDEQ, believes that the remedy remains protective of human health and the environment, complies with Federal and State requirements that are both applicable or relevant and appropriate to this remedial action or involves appropriate waivers of these requirements, and is cost-effective. In addition, the revised remedy utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable for the Site.

VIII. APPROVAL



Max H. Dodson, EPA Assistant Regional Administrator
Office of Ecosystems Protection and Remediation

5/11/99
Date

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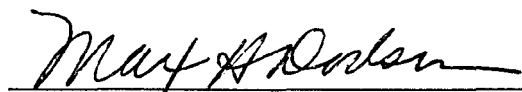
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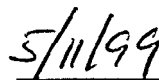
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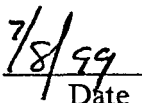
Max H. Dodson, EPA Assistant Regional Administrator
Office of Ecosystems Protection and Remediation



Date



Dianne R. Nielson, Executive Director
Utah Dept. of Environmental Quality



Date